

DO NOT OPEN THIS TEST BOOKLET TILL YOU ARE ASKED TO DO SO.

TR/INS/BOIL/17

Test Booklet Series

**TEST BOOKLET
GENERAL ABILITY TEST**

(Signature of the Candidate)

(Invigilator's Signature)



Time Allowed – 2 hours (Two hours)

Maximum Marks – 100

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES IN THE APPROPRIATE PLACE IN THE ANSWER SHEET BY BLACK BALL POINT PEN ONLY.
3. This Test Booklet contains 100 items (questions). Each question carrying 1 (one) mark only, has four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the most appropriate. In any case, choose ONLY ONE response for each item.
4. You have to mark all your responses by Black Ball Point Pen only on the separate Answer Sheet provided. See directions in the Answer Sheet.
5. All items carry equal marks.
6. Before you proceed to mark in the Answer Sheet the responses to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet.
7. After you have completed filling in responses on the Answer Sheet and the Examination is completed, you shoud handover the Answer Sheet to the Invigilator only. You are permitted to take the Test Booklet with you.
8. Sheets for rough work are appended on the Test Booklet at the end.
9. **Penalty for wrong answers :**
 - (a) There will be four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
 - (b) If a candidate gives more than one answer, it will treated as a **Wrong Answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (c) If a question is left blank, i.e no answer is given by the candidate, there will be **no penalty** for that question.

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Four options are given against each of the following questions. Select the best/correct options from among the four options and encode in the answer sheet by using **Black Ball Point Pen** only as per example given below :

Example : The capital of India is

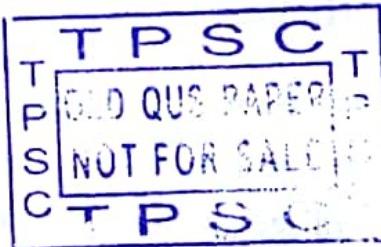
- | | |
|------------------|--|
| (A) Delhi | <input checked="" type="radio"/> New Delhi |
| (C) Indraprastha | (D) None of these |

PART - A



1. How many Gas Thermal Power Stations are there in Tripura ?
 (A) 3
 (B) 4
 (C) 5
 (D) 2
2. What is the total length of border of Tripura with Bangladesh ?
 (A) 843 km
 (B) 856 km
 (C) 765 km
 (D) 905 km
3. Tripura has smallest border with which neighbouring State ?
 (A) Assam
 (B) Mizoram
 (C) Meghalaya
 (D) Manipur
4. How many Gram Panchayats are there in Tripura ?
 (A) 587
 (B) 591
 (C) 562
 (D) 593
5. Who is the present Chief Justice of India ?
 (A) P. Sathasivam
 (B) T. S. Thakur
 (C) V. N. Khare
 (D) Jagdish Singh Khehar
6. Administration of the Boilers Act comes under which ministry of the Central Government ?
 (A) Ministry of Commerce and Industry
 (B) Ministry of Labour
 (C) Ministry of Power
 (D) Ministry of Science and Technology

7. Where is the Headquarters of ISRO situated ?
- (A) Ahmedabad
(B) Sriharikota
(C) Hyderabad
(D) Bengaluru
8. Indian Forest Academy is associated with which place ?
- (A) New Delhi
(B) Dehradun
(C) Mossoorie
(D) Itanagar
9. The longest railway bridge in the world is situated in which country ?
- (A) China
(B) Japan
(C) India
(D) USA
10. Which is the most widely spoken language in the world ?
- (A) English
(B) Spanish
(C) Chinese
(D) Hindi
11. Which of the following countries has a square national flag ?
- (A) Switzerland
(B) Poland
(C) Great Britain
(D) Chile
12. What is the full form of NATO ?
- (A) North Alliance Treaty Organisation
(B) North Atlantic Trust Organisation
(C) North America Treaty Organisation
(D) North Atlantic Treaty Organisation
13. Identify the non Greenhouse Gas (GHG) from the following.
- (A) Carbon Monoxide
(B) Methane
(C) Nitrous Oxide
(D) Sulphur Hexafluoride
14. Which one of the following wave is used by the common TV remote control ?
- (A) Radio waves
(B) Lasers
(C) Infrared waves
(D) Ultrasonic waves

15. Sanju bought a TV with 20% discount on the labelled price. Had he bought it with 25% discount, he would have saved Rs.500. At what price did he buy the TV ?
- (A) Rs.16,000
 (B) Rs.12,000
 (C) Rs.10,000
 (D) Rs.5,000
16. A train crosses a platform 100 m long in 60 seconds at a speed of 45 km/hr. The time taken by the train to cross an electric pole is :
- (A) 8 sec
 (B) 52 sec
 (C) 1 min
 (D) Data inadequate
17. Who is the author of the Book 'Life Divine' ?
- (A) Swami Vivekananda
 (B) Sri Aurobindo
 (C) Rishi Bankim Chattopadhyay
 (D) Osho
18. Which book is not written by Rabindranath Tagore ?
- (A) Chitra
 (B) Court Dancer
 (C) Chidambara
 (D) Crescent Moon
19. 101st amendment of the Constitution of India refers to
- (A) Goods & Services Tax Bill
 (B) Formation of National Judicial Appointment Commission
 (C) Substituted 'Odia' for 'Oriya'
 (D) 27% reservation of OBC in Government and Private Educational Institutions
20. Total number of Rajya Sabha membership
- (A) 235
 (B) 245
 (C) 243
 (D) 283
- 
21. In which two districts of Tripura, the Indo-German Development Co-operation (IGDC) projects have been implemented ?
- (A) Dhalai & Unakoti
 (B) Sepahijala & Gomati
 (C) Dhalai & North
 (D) Unokoti & North

22. Pay & Pension Review Committee is headed by
(A) S. K. Panda
(B) Bhanu Lal Saha
(C) G. K. Rao
(D) Sanjib Ranjan
23. Recently, ONGC Tripura Power Company decided to add ____ generating Unit to their existing Plant at Palatana.
(Fill up the gap with right word from the following)
(A) Third
(B) Fourth
(C) Fifth
(D) Sixth
24. Which Bank in the country on June 6th announced to set up 100 digital villages in various states ?
(A) State Bank of India
(B) United Bank of India
(C) Syndicate Bank
(D) Vijaya Bank
25. On July 5th, 2017, who among the following launched a month-long plantation drive in Delhi to mark Van Mahotsav ?
(A) President Pranab Mukherjee
(B) Vice President Hamid Ansari
(C) Prime Minister Narendra Modi
(D) Union Environment Minister Dr. Harsh Vardhan

Fill the gaps (from question Nos. 26-28)

26. Virat Kohli on July 7, 2017 broke Sachin Tendulkar's record for most hundreds in One Day Internationals (ODIs) while chasing. Kohli took ____ innings to do it.
(A) 100
(B) 102
(C) 104
(D) 105
27. The BRICS Summit 2017 will be held in
(A) China
(B) Brazil
(C) Russia
(D) India

28. The recent G20 Summit held at Germany was the
(A) 12th Summit
(B) 11th Summit
(C) 10th Summit
(D) 13th Summit

29. Who is the present Governor of Nagaland ?
(A) S. C. Jamir
(B) Padmanabha Balakrishna Acharya
(C) Banwarilal Purohit
(D) Tathagata Roy

30. Recently, in which route the Mansarovar Yatra was disrupted ?
(A) Rohtang Pass
(B) Bumla Pass
(C) Lipulekh Pass
(D) Nathu La Pass

Select the word which is most nearly opposite in meaning to the word given in Capital letters (for question Nos. 31 to 33).

31. CACOPHONOUS
(A) Loud
(B) Melodious
(C) Sonorous
(D) Harsh

32. MITIGATE
(A) Abate
(B) Aggravate
(C) Allay
(D) Alleviate

33. TRANSIENT
(A) Alien
(B) Tragic
(C) Permanent
(D) Brief

Select the word which is most nearly similar in meaning to the word given in Capital letters (for question Nos. 34 to 36).

34. FUGITIVE
(A) Escaping
(B) Enduring
(C) Vain
(D) Weak

35. GOAD
(A) Save
(B) Irritate
(C) Worship
(D) Soothe



36. VANGUARD
(A) Race-driver
(B) Officer
(C) Flag-bearer
(D) Pioneer

Fill up the gaps (for question Nos. 37 to 40).

37. I suffer from no _____ about my capabilities.

- (A) illusion
- (B) doubt
- (C) hallucination
- (D) imagination

38. Rama took his _____ for the wrong done to him.

- (A) avenge
- (B) vengeance
- (C) revenge
- (D) ravage

39. The Christmas Tree was _____ with stars and other decorative items.

- (A) laden
- (B) adorned
- (C) endowed
- (D) enticed

40. It _____ rained because the roads are wet.

- (A) could
- (B) must
- (C) should have
- (D) must have

PART B

41. Any pressure vessel generating steam shall not come under IBR, if its water holding capacity (such capacity being measured from the feed check valve to the main steam stop valve) does not exceed
(A) 20 litres
(B) 22.5 litres
(C) 25 litres
(D) 500 litres
42. What is the stack emission norms of Central Pollution Control Board in case of Gas Thermal Power Plants of size 400 MW and above, burning natural gas
(A) Less than 150 ppm
(B) Less than 100 ppm
(C) Less than 50 ppm
(D) No limit
43. A shell type 'small industrial boiler' after construction at the maker's works, during inspection, shall be hydro tested at a pressure
(A) 1.25 times the working pressure
(B) 1.5 times the working pressure
(C) 2.0 times the working pressure
(D) 2.25 times the working pressure
44. A shell type boiler generating steam shall be classified as 'small industrial boiler' if its
(A) pressure is upto 7 kg/sq.cm and volumetric capacity exceeds 25 litres but does not exceed 500 litres.
(B) pressure is upto 10 kg/sq.cm and volumetric capacity exceeds 20 litres but does not exceed 500 litres.
(C) pressure is upto 12 kg/sq.cm and volumetric capacity does not exceed 150 litres.
(D) pressure is upto 15 kg/sq.cm and volumetric capacity does not exceed 1000 litres.
45. Dye Penetration Test is used to detect
(A) surface cracks
(B) sub-surface cracks
(C) large voids within the structure
(D) All of the above
46. Blow down from the Boiler Drum is carried out to
(A) lower steam pressure
(B) increase steam pressure
(C) control the solid concentration in boiler water
(D) All of the above

47. The height of the chimney for 500 MW unit as per the latest guidelines is
(A) 220 mtr
(B) 300 mtr
(C) 250 mtr
(D) 275 mtr
48. The efficiency of modern Electrostatic Precipitators is
(A) Less than 95%
(B) Between 90- 95%
(C) Greater than 99 %
(D) None of the above
49. Atomization of HFO in burners is carried out through
(A) Steam
(B) Compressed air
(C) Flue gas
(D) Pure oxygen
50. Remnant Life Assessment (RLA) of boiler is carried out as per IBR 1950 regulation
(A) 380
(B) 391 A
(C) 320
(D) None of the above
51. Modern utility boilers are supported at the top and are hanging type. It is to
(A) keep vertical
(B) allow free expansion
(C) restricted expansion
(D) None of the above
52. The efficiency of collection in ESP will _____ if the velocity of flue gas passing through it increase
(Fill up the gap with right word from the following options)
(A) increase
(B) decrease
(C) remain the same
(D) first increase and then decrease
53. The use of primary air in a boiler is for
(A) carrying pulverized coal to burner
(B) cooling the boiler wall
(C) taking the ash to the ESP
(D) None of the above
54. On-load cleaning of water wall tube surface is carried out by
(A) Wall de-sluggers
(B) LRSB
(C) Both of the above
(D) None of the above

55. Fish mouth opening is a term used to describe
(A) PA fan impeller crack
(B) Boiler tube failure
(C) Mill gear box crack
(D) None of the above
56. Hydra-step (gauge glass) is mounted on
(A) Boiler drum
(B) Economizer
(C) Re- heater
(D) Super heater
57. Which material is used in final leg of Superheater having steam temperature of 540 degree Celsius
(A) Carbon steel
(B) Alloy steel
(C) Stainless steel
(D) Any one of the above
58. Blow down which is used for removal of ionic impurities from boiler drum is
(A) Intermediate blow down (IBD)
(B) Continuous blow down (CBD)
(C) Emergency blow down (EBD)
(D) All of the above
59. Welding process used for high pressure welding joints of boiler is
(A) Metal inert gas welding and arc welding
(B) Arc welding and Tungsten Inert Gas Welding
(C) Tungsten Inert Gas Welding and Metal inert gas welding
(D) Metal Inert Gas Welding and Laser Welding
60. The efficiency of the power plant shall improve with
(A) Increase quality of coal burning
(B) Larger quantity of water use
(C) Lower load in the plant
(D) Use of high steam pressure
61. Which one is the boiler mounting ?
(A) Economizer
(B) Soot Blowers
(C) Re- heater
(D) Boiler drum Safety Valve
62. The pH value to be maintained in the feed water
(A) 8.8 to 9.2
(B) Less than 8.3
(C) Greater than 9.3
(D) None of the above

63. Rapping mechanism is a term associated with the following equipment
(A) ESP
(B) Mills
(C) I.D. Fan
(D) None of the above
64. APH leakages are normally more in
(A) Tubular air heaters
(B) Rotary air heaters
(C) Same in both of the above
(D) None of the above
65. HP dosing in power plant is carried out in
(A) Boiler drum
(B) Deaerator
(C) Feed water line
(D) Condensate line
66. Which type of steam is used in LRSBs ?
(A) Superheated
(B) Wet steam
(C) Initially wet and then superheated
(D) Saturated steam
67. Which of the following is considered as general purpose welding electrode ?
(A) E - 6013
(B) E - 7018
(C) E - 8018 B2
(D) E - 9015 B9
68. In a typical 200 MW boiler, Emergency blow down tapping is taken from
(A) Drum
(B) Down comer ring header
(C) Deaerator
(D) Anyone of the above
69. Drum material in typical 200 MW boiler is
(A) Alloy steel
(B) Carbon steel
(C) Stainless steel
(D) All of the above
70. What is sorbent in FBC ?
(A) Sand
(B) Ash
(C) Lime stone
(D) All of the above

71. In a modern ESP, which electrode is grounded ?
(A) Collecting electrode
(B) Emitting electrode
(C) Both of the above
(D) None of the above
72. Secondary air in a pulverized fuel boiler is used to
(A) carry pulverized coal to the burners
(B) assist in complete combustion of fuel
(C) clean the boiler wall
(D) carry mill reject to reject coal bunkers
73. Which of the following safety valve in power plant uses superior metallurgy ?
(A) Drum safety valve
(B) Cold reheat safety valve
(C) Main steam safety valve
(D) Deaerator safety valve
74. Which one of the following liquid fuels has more viscosity ?
(A) Naphtha
(B) Light Diesel oil
(C) High speed Diesel
(D) Heavy fuel oil
75. Excess penetration is a term used to describe
(A) destructive testing of weld
(B) defect in weld joints
(C) holes in aeration pads in ESP
(D) All of the above
76. Which gas is used for shielding of weld area in pressure parts during welding
(A) Argon
(B) Helium
(C) Nitrogen
(D) Hydrogen
77. Flame intensity in a boiler is sensed by
(A) Ignitors
(B) Scanner
(C) Cameras
(D) None of the above
78. Balanced draft boilers have
(A) Only F.D fans
(B) Only I.D fans
(C) Both I.D and F.D fans
(D) None of the above



79. In water wall of modern utility boiler, water flows from
(A) Top to bottom
(B) Bottom to top
(C) Horizontally
(D) Any one of the above
80. Dissolved oxygen from feed water is removed in
(A) Drum
(B) LP heaters
(C) HP heaters
(D) Deaerator
81. Which equipment of power plant uses sector plates ?
(A) P.A fan
(B) Air preheater
(C) Scrapper conveyor
(D) Main turbine
82. Which of the following is not a high pressure boiler ?
(A) Loeffler
(B) Lancashire
(C) Velox
(D) Lamount
83. Size of boiler tubes is specified by
(A) Mean diameter and thickness
(B) Inside diameter and thickness
(C) Outside diameter and thickness
(D) Outside diameter alone
84. The fusible plug in small boilers is located
(A) in the drum
(B) in the fire tubes
(C) above steam drum
(D) over the combustion chamber
85. Caustic gouging destroy protective film by
(A) dissolving carbonates scale
(B) dissolving iron and magnetite to form sodium ferrates
(C) dissolving silicate scale
(D) deposits metal hydroxides
86. In boiler quality steel, percentage of carbon in steel is
(A) 0.30%
(B) 0.25%
(C) 0.35%
(D) 0.20%

87. The major axis of elliptical manhole on the shell should be provided
- (A) longitudinally
 - (B) circumferentially
 - (C) axially
 - (D) None of the above
88. Stainless steel is an alloy of
- (A) Copper, zinc and iron
 - (B) Aluminum, zinc, and iron
 - (C) Chromium, nickel and iron
 - (D) None of the above
89. In a superheater
- (A) Pressure raises, temperature drops
 - (B) Pressure raises, temperature remains constant
 - (C) Pressure remains constant and temperature raises
 - (D) Both pressure and temperature remains constant
90. Minimum diameter of boiler safety valve as per IBR is
- (A) 15.0 mm
 - (B) 19.0 mm
 - (C) 32.5 mm
 - (D) 50.0 mm
91. Burning of low grade fuel can be improved by
- (A) blending of better quality
 - (B) oil assisted ignition
 - (C) pulverized
 - (D) Any of the above
92. Which variety of Coal has lowest calorific value ?
- (A) Steam coal
 - (B) Bituminous coal
 - (C) Lignite coal
 - (D) Anthracite coal
93. The maximum percentage allowed for accumulation of pressure in steam test at site is
- (A) 5%
 - (B) 10%
 - (C) 7.5%
 - (D) 15%
94. An increase in the conductivity of the water inside the boiler indicates a rise in
- (A) Purity
 - (B) Temperature
 - (C) Contamination
 - (D) None of the above



95. The efficiency of a typical FBC boiler is of the order of
- (A) 30%
 - (B) 80%
 - (C) 70%
 - (D) 60%
96. Which is the common coal firing system used in Indian thermal power plants ?
- (A) Stoker firing
 - (B) Pulverized coal firing
 - (C) Pressurized bed
 - (D) Fluidized bed
97. Proper sizing of steam pipeline help in minimizing
- (A) Steam requirement
 - (B) Pressure drop
 - (C) Temperature drop
 - (D) Boiler efficiency
98. Which fuel requires the lowest amount of excess air for combustion ?
- (A) Natural gas
 - (B) Furnace oil
 - (C) Bagasse
 - (D) Pulverized coal
99. Which data is not required to calculate Boiler Efficiency by indirect method ?
- (A) steam flow rate
 - (B) stack gas temperature
 - (C) ambient temperature
 - (D) energy content of coal
100. Economiser is used to heat
- (A) Inlet air
 - (B) Flue gas
 - (C) Feed water
 - (D) All of the above